Vincent, J. 1933-1935. The birds of northern Portuguese East Africa. *Ibis* (13) 3: 611–652; 4: 126–160, 305–340, 495–527, 757–799; 5: 1–37, 355–397, 485–529, 707–762.

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# Notes on *Hirundo fuliginosa* and its status as a "cliff swallow"

*by Roy A. Earlé*

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The Afrotropical Dusky Swallow *Hirundo fuliginosa* is a little known species confined to the lowland forests of Cameroun, Equatorial Guinea and Gabon (Fig. 1). Although it is probably not at all rare (Good 1953), it is often confused with other, more common forest swallow species such as *Psalidoprocne nitens*, from which "they can hardly be distinguished in the

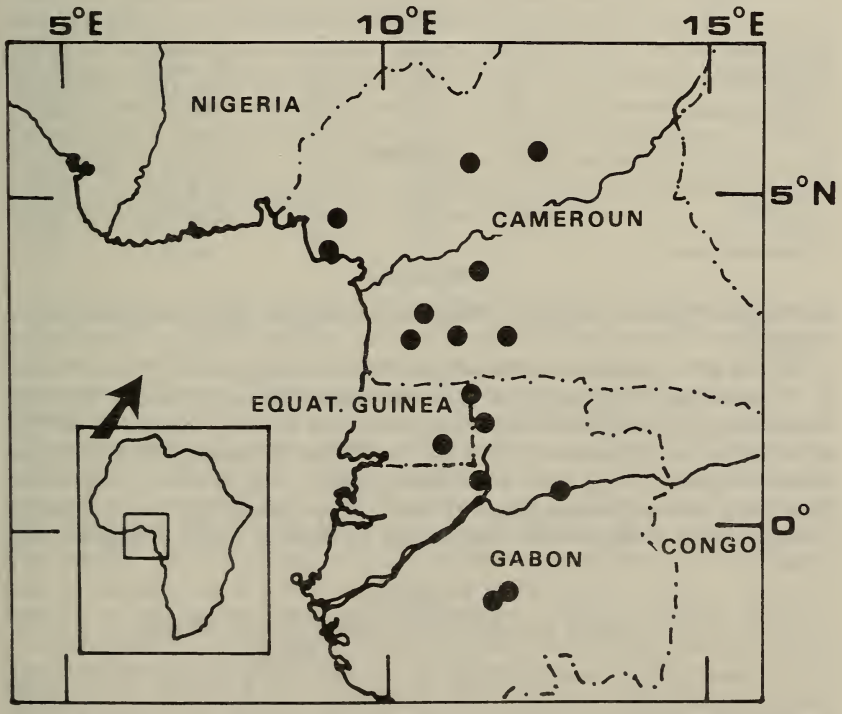


Figure 1. Map of equatorial West Africa with the localities from which *Hirundo fuliginosa* is known.

field unless it be by the very slightly forked tail [of *H. fuliginosa*]" (Bannerman 1951). *H. fuliginosa* probably benefits from the activities of man as it often uses man-made structures such as houses for nesting and roosting (Good 1953, Searle 1954).

## Description, measurements and moult

*Hirundo fuliginosa* is wholly sooty-brown except for the throat, which has a brighter brown wash. The tail is only slightly forked and it thus superficially resembles the sympatric squaretailed *Psalidoprocne nitens*. Body measurements given in Table 1 show that there are no significant size differences between males and females. The mean sizes all fall well within

TABLE 1

Dimensions of male, female and unsexed *Hirundo fuliginosa*

| Measurement (mm) | n | Mean | S.D. | Range | Median |
|---|---|---|---|---|---|
| **Males** | | | | | |
| Wing length | 12 | 87.3 | 2.38 | 84.0–92.0 | 86.90 |
| Tail length | 12 | 44.9 | 2.62 | 40.2–49.5 | 45.05 |
| Tarsus | 12 | 10.1 | 0.57 | 9.2–11.2 | 10.05 |
| Exposed culmen | 12 | 6.1 | 0.29 | 5.4– 6.5 | 6.15 |
| **Females** | | | | | |
| Wing length | 7 | 89.4 | 1.75 | 86.0–91.0 | 89.00 |
| Tail length | 7 | 44.0 | 1.34 | 40.4–45.5 | 45.20 |
| Tarsus | 6 | 10.6 | 0.46 | 9.9–11.2 | 10.60 |
| Exposed culmen | 6 | 6.1 | 0.57 | 5.4– 7.1 | 5.95 |
| **Unsexed** | | | | | |
| Wing length | 7 | 88.2 | 2.74 | 85.0–92.0 | 88.00 |
| Tail length | 6 | 46.9 | 1.85 | 44.2–49.1 | 47.20 |
| Tarsus | 7 | 10.2 | 0.73 | 9.3–11.2 | 10.20 |
| Exposed culmen | 6 | 6.0 | 0.60 | 5.4– 6.8 | 5.85 |

the ranges given by Chapin (1925) in his original full description of the species.

Of the 28 specimens examined (see Acknowledgements), 9 were found to be moulting between June and October. Primary moult is typically descending (*sensu* Ginn & Melville 1983). The first 2 primaries, P1 & P2, are dropped simultaneously or nearly so. When these are fully grown, the central tertial drops, and only when fully re-grown does the inner (smallest) and then outer (largest) tertial drop. Secondary moult starts as soon as P6 is dropped and is typically ascending. Table 2 suggests that

TABLE 2

The timing of wing-moult and breeding in *Hirundo fuliginosa*

| | Months | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | Total |
| Specimens examined (n) | 2 | 0 | 1 | 0 | 1 | 5 | 6 | 5 | 3 | 3 | 1 | 1 | 28 |
| Birds moulting (n) | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 1 | 1 | 0 | 0 | 11 |
| Birds moulting (% of total) | 0 | 0 | 0 | 0 | 0 | 22 | 33 | 22 | 11 | 11 | 0 | 0 | 99 |
| Breeding records (n) | 1 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 7 |

moult follows breeding, but not enough breeding data are available to substantiate this.

## Breeding, nest and eggs

*Hirundo fuliginosa* has been found breeding in 5 months of the year (Table 2), with young in January and November and nests with eggs in April, May and June. Mackworth-Praed & Grant (1973), however, do not state if the young observed were nestlings or free flying. Searle (1954) also found egg laying in June, but courtship was observed in March.

The British Museum (Natural History) (BMNH) has 3 clutches of this species. These are of 3, 2 and 2 eggs respectively. The eggs were all collected near Yaoundé, Cameroun, on 6 and 13 April 1958 and 26 May 1958. All eggs are pure white and the mean measurements for 6 eggs are 18.3 x 12.9 mm (17.0–19.0 x 12.5–13.1). Searle (1954) gives the measurements of 6 eggs from a single pair as 19.6 x 13.0 mm (19.0–20.2 x 12.7–13.2), which is somewhat larger although not significantly so. Searle gives the egg colour as either "immaculate white, or white very sparingly and lightly spotted with pale orange-brown". One British Museum egg label also states "2 eggs – one heavily spotted with red mud". The labels with the 3 British Museum clutches all state "nest under (between) rocks in virgin forest", and one added "nest padded with kapok". No description of the nests are given with these eggs, but from Chapin (1948) it is known that they build mud nests which are described by Searle (1954) as "made of mud pellets, roughly hemispherical in shape with two very short spouted openings set diametrically opposite each other close to the rock". However, Mackworth-Praed & Grant (1973) also state that "the nest may consist of a pad only", but they give no further details. *H. fuliginosa* does not breed colonially but solitarily (Chapin 1948, Searle 1954).

## Conclusion

Both Peters (1960) and Howard & Moore (1984) considered *Hirundo fuliginosa* as a "cliff swallow", thus placing it in the genus *Petrochelidon*. This was probably based on the original description by Chapin (1925), who remarked that "Among African swallows the general combination of structural features comes nearest to that of *Lecythoplastes* Reichenow, a hitherto monotypic genus closely allied to *Petrochelidon*". *Lecythoplastes* Reichenow, 1898, was seldom recognized as a good genus and the genotype *L. preussi* and also *fuliginosa* are usually associated with *Petrochelidon*. Mayr & Bond (1943) treated *Petrochelidon* as a subgenus, but Brooke (1972) retained it as a genus on the strength of its "red rump and a virtually square tail" and because it "does not build an entrance tunnel to its mud pellet nests". However, Phillips (1973) regarded *Petrochelidon* as inseparable from *Hirundo* and Brooke (*in litt.*) later concurred and agreed with Mayr & Bond (1943) that *H. fuliginosa* should be placed in *Petrochelidon*. However, Hall & Moreau (1970) did not regard *H. fuliginosa* as a 'cliff swallow' neither could they find evidence that it was closely related to any other African swallow species. I agree with Hall & Moreau (1970) and will argue the case below in more detail.

I regard the cliff swallow group as monophyletic (see below), but not distant enough from *Hirundo* to warrant a separate genus and I thus agree with Phillips (1973) that cliff swallows should be grouped in *Hirundo*. The characters of the cliff swallow species and *H. fuliginosa* are given in Table 3.

TABLE 3

Variable characters of 'cliff swallows'

| Species | Colonial mud nests | Lay spotted eggs | Scaly mantle | Rump colorous with back | Red in plumage |
|---|---|---|---|---|---|
| *Hirundo ariel* | Yes | Some | Yes | No | Yes |
| *H. nigricans* | No | Yes | Yes | No | Yes |
| *H. fluvicola* | Yes | Yes | Yes | No | Yes |
| *H. spilodera* | Yes | Yes | Yes | No | Yes |
| *H. rufigula* | Yes | Yes | Yes | No | Yes |
| *H. preussi* | Yes | Yes | Yes | No | Yes |
| *H. pyrrhonota* | Yes | Yes | Yes | No | Yes |
| *H. fulva* | Yes | Yes | Yes | No | Yes |
| *H. andecola* | Yes? | ? | No | in adults | in juveniles |
| *H. fuliginosa* | No | Some? | No | Yes | No |
| *H. perdita* | ? | ? | Yes | No | Yes |

Cliff swallows are a group of 11 species (including the recently described *perdita* (Fry & Smith 1985) usually placed in *Petrochelidon*, and the binding factor amongst them is their highly colonial nesting habits, all of them, that is, except *H. fuliginosa* and *H. nigricans* of Australia. The Australian species has probably opted for a different breeding strategy as it has to compete with the closely related *H. ariel* for available nesting sites; but it does, however, still show all the other 'cliff swallow' features (Table 3). A second feature peculiar to the cliff swallows is the pale edges to the iridescent feathers of the mantle creating a scaly effect, a feature that is not found elsewhere in the Hirundinidae. All cliff swallows, again with the exception of *H. fuliginosa* and also of *H. andecola* show this scaly mantle. However, *H. andecola* may be a *Riparia* or close to it, since, though it is a colonial nester, apparently it does not use mud for nest building (Zimmer 1955, Johnson 1967). All cliff swallows lay speckled eggs as shown by good collections of eggs of most of the species in the BMNH. Some individuals of *H. fluvicola* also lay white eggs, but the majority of their eggs are spotted. The white eggs of *H. fuliginosa* are thus unlike most cliff swallow species. From Table 3 it is clear that *H. fuliginosa* falls short on probably all of the 5 characters listed.

From the above it would seem that *H. fuliginosa* is probably not a 'cliff swallow' and that its affinities in the Hirundinidae are not clear. It is probably not closely related to any other *Hirundo* species, though further data on its breeding and behaviour will presumably shed more light on its position.

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References:

Bannerman, D. A. 1951. *The Birds of Tropical West Africa*. Vol. 8. London: Crown Agents for the Colonies.
Brooke, R. K. 1972. Generic limits in old world Apodidae and Hirundinidae. *Bull. Brit. Orn. Cl.* 92: 53–57.
Chapin, J. P. 1925. A new swallow from Cameroon. *Ibis* Ser. 12 (1): 148–151.
Chapin, J. P. 1948. Field notes on *Petrochelidon fuliginosa*. *Ibis* 90: 474–476.
Fry, C. H. & Smith, D. A. 1985. A new swallow from the Red Sea. *Ibis* 127: 1–6.
Ginn, H. B. & Melville, D. S. 1983. *Moult in Birds*. British Trust for Ornithology.
Good, A. I. 1953. *The Birds of French Cameroon*. Part II.
Hall, B. P. & Moreau, R. E. 1970. *An Atlas of Speciation in African Passerine Birds*. Trustees of the British Museum (Natural History).
Howard, R. & Moore, A. 1984. *A Complete Checklist of the Birds of the World*. 2nd Ed Oxford University Press.
Johnson, A. W. 1967. *The Birds of Chile and adjacent Regions of Argentina, Bolivia and Peru*. Buenos Aires: Platt Est. Graficos.
Mackworth-Praed, C. W. & Grant, C. H. B. 1973. *Birds of West Central and Western Africa*. Vol 2. Longman.
Mayr, E. & Bond, J. 1943. Notes on the generic classification of the swallows, Hirundinidae. *Ibis* 85: 334–341.
Peters, J. L. 1960. *Check-list of Birds of the World*. IX. Mus. Comp. Zool. Cambridge: Mass.
Phillips, A. R. 1973. On the supposed genus Petrochelidon. *Bull. Brit. Orn. Cl.* 93: 20.
Searle, W. 1954. A second contribution to the ornithology of the British Cameroons. *Ibis* 96: 47–80.
Zimmer, J. T. 1955. Studies of Peruvian birds. No 66. The swallows (Hirundinidae). *Am. Mus. Novit.* 1723.

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# Notes on the seabirds of Wallis and Futuna Islands, southwest Pacific Ocean

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The French overseas territories of Wallis and Futuna Islands are located to the northeast of the Fijian islands, at 176°–178°W, and c. 14°S. Biogeographically they belong to the Samoa-Wallis province as defined by the South Pacific Commission (Dahl 1980). Wallis consists of a principal island, Uvea or Uea, which is surrounded by a lagoon with 20 islets of coral or volcanic rock, and Futuna and Alofi (Horne Islands) are situated c. 200 km to the southwest of Wallis. Alofi is less than 2 km from Futuna.

These 3 islands are located near the centre of a vast 1000 km-sided triangle of ocean delimited by the archipelagos of Tuvalu to the north, Samoa to the east and Fiji to the southwest. Because of their isolation they are of special significance as breeding stations for seabirds.

Uvea (96 km$^2$) is a volcanic island with little relief (maximum elevation 145 m); it offers few possibilities for nesting seabirds, except on the crags